

REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 8-10 and 12 have been amended to clarify the claimed subject matter.

Claims 8-12 were rejected under 35 USC §102(e) as anticipated by Gilhousen (US 6,034,635). To the extent these rejections may be deemed applicable to amended claims 8-12, Applicants respectfully traverse.

The present invention is directed to a system in which the position of a mobile terminal, relative to a base station, is measured utilizing an array antenna. The distance between the base station and the terminal is measured from the propagation delay of a communicated signal. From the measured angular position and distance information, the position of the mobile terminal may be determined.

According to each of the present claims, the accuracy of the position determination is improved by changing the target quality of transmission power control in response to a situation where the position detection operation is being performed during a diversity handover. Such a feature is advantageous in a CDMA communication system in which a communication terminal normally

communicates with one base station but communicates with plural base stations during a diversity handover operation.

Moreover, according to the claimed invention, the base station individually determines the position of the communication terminal apparatus. As a result, the invention solves problems that occur when the communication terminal apparatus communicates with multiple base stations during the handover.

By contrast to the claimed invention, Gilhousen discloses a technique of determining a mobile station's position based on the reception timing difference among three base stations or based on the reception timing difference between two base stations and the measured angle of a round trip signal.

The differences between the claimed invention and Gilhousen's disclosure may be better understood with reference to claim 8. Claim 8 now recites:

A base station apparatus for use in a CDMA radio communication system in which a communication terminal apparatus normally communicates with one base station apparatus and communicates with a plurality of base station apparatuses during a diversity handover, and in which each base station apparatus can individually detect a position of the communication terminal apparatus, said base station apparatus comprising:

a first notifier that notifies a control station apparatus of first information to the effect that the communication terminal apparatus is performing said diversity handover;

a second notifier that notifies the control station apparatus of second information to the effect that a position detection is in progress;

a receiver that receives third information provided from the control station apparatus to the effect that, in response to a determination that said position detection is being performed during said diversity handover, a target quality is to be changed to a level provided from the control station apparatus to enable satisfactory performance of said position detection; and

a transmit power controller that changes the target quality according to the third information and performs transmit power control of the communication terminal apparatus at the changed target quality.

Gilhousen fails to disclose the claimed features whereby:

(1) the base station apparatus can individually detect a position of the communication terminal apparatus, and

(2) a transmit power controller of the base station changes a target quality to a level provided by the control station and performs transmit power control with respect to the communication terminal at the target quality, in response to a determination that position detection is being performed during a diversity handover.

In contrast to the invention of claim 8, Gilhousen discloses a technique of determining a mobile station's position based on the reception timing difference among three base stations or based on the reception timing difference between two base stations and the measured angle of a round trip signal.

Thus, Gilhousen does not disclose the feature of claim 8 whereby the base station apparatus can individually detect a

position of the communication terminal, given that Gilhousen discloses a system wherein two or more base stations are required to detect the position of the communication terminal.

Further, Gilhousen discloses that the initial power level of a mobile station communicating with a closest base station, during a position detection operation, is the lowest possible level to maintain a high traffic capacity for voice communication. The initial power level of the mobile station communicating with a neighboring base station, during the position detection operation, is the low power setting. Only if the mobile station cannot communicate with the neighboring base station at low power is its power setting increased to the maximum power level or, alternatively, incrementally increased until the neighboring base station can successfully perform its timing measurement.

From the above, it is clear that Gilhousen does not disclose the feature of claim 8 of a receiver that receives third information provided from the control station apparatus to the effect that, in response to a determination that the position detection is being performed during diversity handover, a target quality is to be changed to a level provided from the control station apparatus to enable satisfactory performance of the position detection. Gilhousen changes the target for the mobile

terminal's power level only in response to the mobile terminal's signal being so weak that the base station cannot perform its timing measurement. In other words, the "trigger" for the change in target in the present claimed invention is information from a control station apparatus that a determination is made that position detection is being performed during a diversity handover, whereas in Gilhousen the "trigger" is that the mobile terminal's signal is so weak that the base station cannot perform its timing measurement. Gilhousen never determines that position detection is being performed during handover.

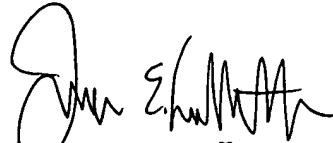
Accordingly, Gilhousen fails to anticipate the invention of present claim 8. More specifically, Gilhousen does not disclose the features wherein (1) the base station apparatus can individually detect a position of the communication terminal apparatus and (2) a receiver receives third information provided from the control station apparatus to the effect that, in response to a determination that the position detection is being performed during diversity handover, a target quality is to be changed to a level provided from the control station apparatus to enable satisfactory performance of the position detection. Therefore, allowance of claim 8 and all claims dependent therefrom is warranted.

Independent claim 9 recites a base station that individually can detect the position of the communication terminal apparatus and that includes a target quality changer that raises a target quality for transmission power control in response to a determination that a position detection is being performed during a diversity handover. Claim 12 recites a transmit power control method in a system wherein each base station has the capability of individually detecting the position of the communication terminal apparatus, the method including providing, from the control station apparatus to the communication terminal apparatus and the base station apparatus, third information to the effect that, in response to a determination that the position detection is being performed during the diversity handover, a target quality is to be changed to a level provided from the control station apparatus to enable satisfactory performance of the position detection. Thus, claims 9 and 12 are not anticipated by Gilhousen for similar reasons to those given above for Gilhousen's failure to anticipate claim 8. Therefore, allowance of claims 9 and 12 is warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



James E. Ledbetter
Registration No. 28,732

Date: October 21, 2003
JEL/DWW/att

Attorney Docket No. JEL 31215 PCT
STEVENS DAVIS, MILLER & MOSHER, L.L.P.
1615 L Street, N.W., Suite 850
P.O. Box 34387
Washington, D.C. 20043-4387
Telephone: (202) 785-0100
Facsimile: (202) 408-5200